

**APPENDIX A**

48. A method for inhibiting T cell responsiveness, comprising (i) contacting a T cell which expresses a cytokine receptor  $\gamma$  chain with an agent which inhibits a signal associated with ligation of the cytokine receptor  $\gamma$  chain such that T cell responsiveness is inhibited, and (ii) detecting whether signal transduction via the cytokine receptor  $\gamma$  chain occurs, wherein the agent is selected from the group consisting of an anti-interleukin-4 antibody, an anti-interleukin-7 antibody, and an anti-interleukin-15 antibody.

72. The method of claim 48, wherein the agent acts extracellularly to inhibit delivery of a signal associated with the cytokine receptor  $\gamma$  chain.

73. The method of claim 72, wherein the agent binds to the cytokine receptor  $\gamma$  chain without stimulating a signal associated with the cytokine receptor  $\gamma$  chain in the T cell.

74. The method of claim 73, wherein the agent is an anti- $\gamma$  chain antibody.

75. The method of claim 72, wherein the agent binds a natural ligand of the cytokine receptor  $\gamma$  chain to inhibit binding of the ligand to the cytokine receptor  $\gamma$  chain.

77. The method of claim 48, wherein the agent acts intracellularly to inhibit a signal associated with the cytokine receptor  $\gamma$  chain.

78. The method of claim 77, wherein the agent inhibits association of the cytokine receptor  $\gamma$  chain with a JAK3 kinase resulting in proliferation of the T cell.

79. The method of claim 77, wherein the agent inhibits tyrosine phosphorylation of a JAK3 kinase.

80. The method of claim 77, wherein the agent inhibits tyrosine phosphorylation of the cytokine receptor  $\gamma$  chain.

81. The method of claim 77, wherein the agent inhibits tyrosine phosphorylation of both the cytokine receptor  $\gamma$  chain and a JAK3 kinase.

82. The method of claim 48, wherein the T cell is contacted *in vivo* with the agent.

83. The method of claim 48, wherein the primary activation signal is delivered by an antigen.
84. The method of claim 83, wherein the antigen is an alloantigen.
85. The method of claim 83, wherein the antigen is an autoantigen.
86. The method of claim 83, wherein the T cell is contacted with the antigen and the agent *in vitro* and the method further comprises administering the T cell to a subject.
87. The method of claim 86, wherein the antigen is on a surface of an allogeneic or xenogeneic cell and the subject is a recipient of an allogenic or xenogeneic cell.
88. The method of claim 86, wherein the subject is suffering from an autoimmune disease or disorder associated with an inappropriate or abnormal immune response.
89. The method of claim 48, wherein the T cell is a donor T cell in bone marrow and the primary activation signal is delivered by a cell which expresses a recipient antigen, resulting in donor T cell unresponsiveness to the cell which expresses the recipient antigen and inhibition of graft-versus-host disease in a bone marrow transplant recipient.
90. The method of claim 89, wherein the agent is an anti- $\gamma$  chain antibody.
91. The method of claim 89, wherein the agent binds a natural ligand of the cytokine receptor  $\gamma$  chain to inhibit binding of the ligand to the cytokine receptor  $\gamma$  chain.
93. The method of claim 91, wherein the agent inhibits association of the cytokine receptor  $\gamma$  chain with a JAK3 kinase resulting in proliferation of the T cell.
94. The method of claim 91, wherein the agent inhibits tyrosine phosphorylation of a JAK3 kinase.
95. The method of claim 91, wherein the agent inhibits tyrosine phosphorylation of the cytokine receptor  $\gamma$  chain.

96. The method of claim 91, wherein the agent inhibits tyrosine phosphorylation of both the cytokine receptor  $\gamma$  chain and a JAK3 kinase.

97. The method of claim 48, wherein the T cell is contacted with the agent *in vitro*.

98. A method for inhibiting responsiveness in an anergic T cell, comprising contacting said T cell with an agent which transduces a signal via the cytokine receptor  $\gamma$  chain such that T cell responsiveness is inhibited.